

THE NUMBER FACTORY - Teacher Notes

These sheets contain 3 end-of-term or last period, end-of-week activities. They are also something visible for the students to take home and all are a lot of fun.

1. **I Know Your Number**

This is just a little fun activity that students cut out and show to their friends and family. The template can be photocopied onto normal paper or card. There is some mathematics involved with the placement of the numbers in the 'master card' and the way the templates are designed, but overall it is best to leave that up to the 'better' students to investigate and further develop in their own time.

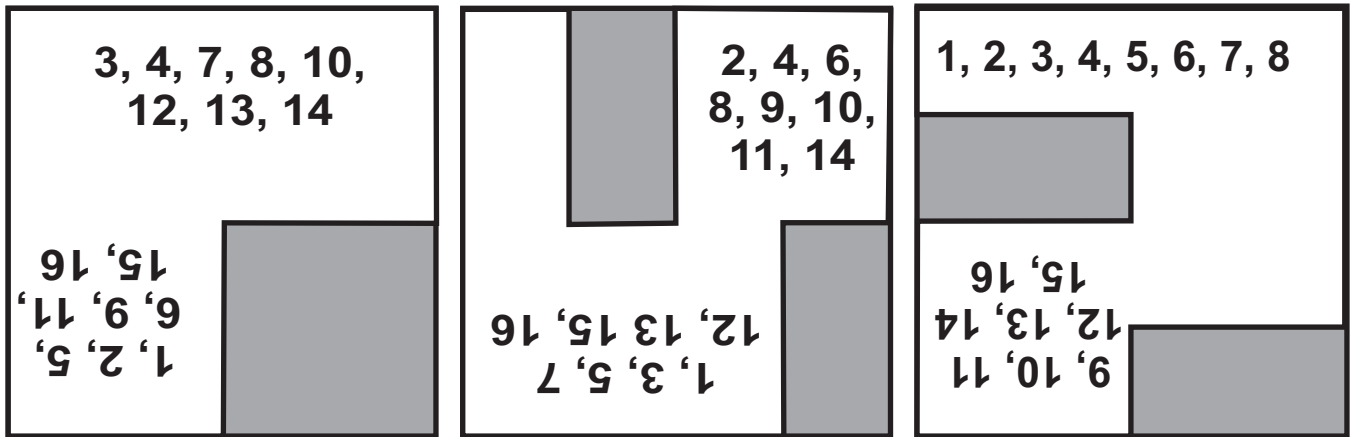
2. **Five Card Addition**

Although it only contains level 2 addition, with this exercise students have a lot of fun and will not realise the number of additions that they are actually performing. If they take the cards home and play the trick 10 times they are potentially completing 10 additions. Compare that with giving them 10 arithmetic sums for homework. How many would actually do these when they went home? The exercise is also a good introduction to BEMA (order of operations).

3. **The Mind Reader**

Like the previous exercise this is a lot of fun for students but they are actually completing a lot of good addition for totals between 1 and 63. For example if the number 63 was chosen, the 'mind reader' would have to add $1 + 2 + 4 + 8 + 16 + 32$. Therefore they should be practising some good numeracy strategies in each of the additions such as making 10s and adding in parts.

I KNOW YOUR NUMBER



5, 6, 7, 8, 11 12, 14, 15 1, 2, 3, 4 9, 10, 13, 16	16	1	11	15
	9	2	6	5
	14	12	13	3
	8	7	10	4

Top
↑
fold
Bottom

For this activity you need to cut out the set of three square templates that are on the next page. Cut out each of the shaded sections.

The “master” card template is a rectangle made up of two squares. Cut this out and fold it down the middle so that you can see the top side.

Place the cards in a row and get a friend to choose a number between 1-16.

Get your friend to arrange the cards so that their chosen number is the right way up on each card.

Stack the cards on top of each other. It doesn't matter which order the cards go but the master card must go on top.

Finally, turn the cards over and you will see your friend's chosen number through a hole at the back!

I KNOW YOUR NUMBER

TEMPLATE

3, 4, 7, 8, 10,
12, 13, 14.

1, 2, 5,
6, 9, 11,
15, 16.

2, 4, 6,
8, 9, 10,
11, 14.

1, 3, 5, 7,
12, 13, 15, 16.

1, 2, 3, 4, 5, 6, 7, 8.

9, 10, 11,
12, 13, 14,
15, 16.

16	1	5	15
9	2	6	5
14	12	13	3
8	7	10	4

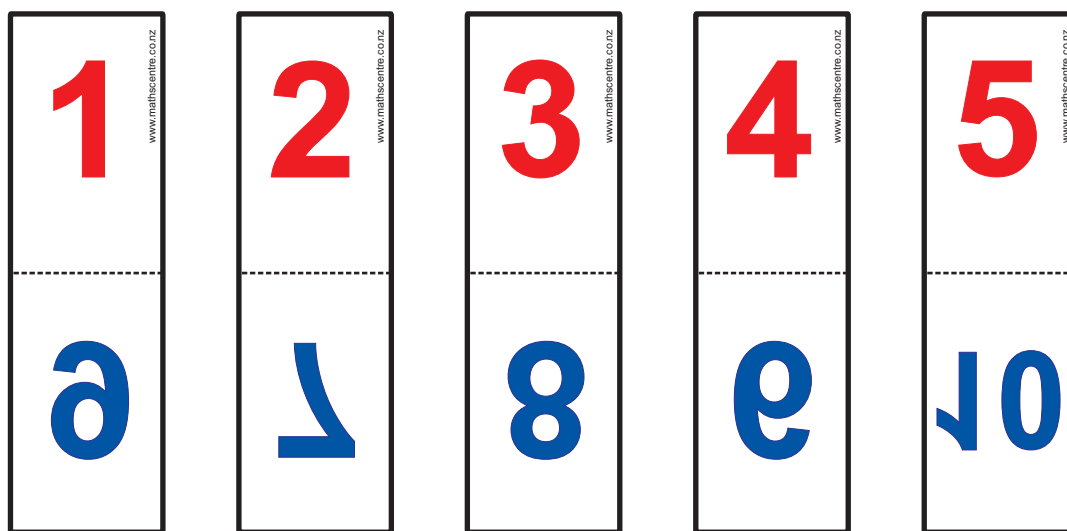
5, 6, 7, 8, 11,
12, 14, 15.

1, 2, 3, 4
9, 10, 13, 16.

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FIVE CARD ADDITION

This trick needs a little knowledge of arithmetic but is easy for most children to master. Firstly they should copy the templates onto card and colour in the numbers 1 to 5 red and the numbers 6 to 10 blue.



Fold the cards in half and glue the backs together so that there are numbers on both sides of the card.

Give the cards to a friend and then close your eyes or turn your back. You can do this trick without looking.

Tell your friend to arrange the cards in any order or colour. All they need to tell you is the number of BLUE cards that are showing.

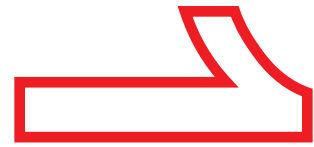
Now you are able to tell your friend the total sum showing on all five cards.

If your friend says there are NO BLUE cards, the total will be 15. This is because for red numbers the total is $1 + 2 + 3 + 4 + 5 = 15$.

For every BLUE card showing, ADD an extra 5. This means if there are 4 BLUE cards then add 20 as $4 \times 5 = 20$. This would make the total $15 + 20 = 35$.

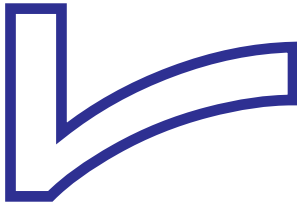
It does not matter which cards are BLUE! If all the BLUE cards are showing, the total would be $15 + 5 \times 5 = 40$.

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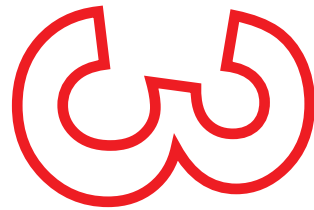
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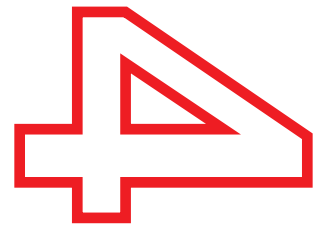
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THE MIND READER

Cut out the following 6 cards. Show them to a friend and ask them to select a number from any card.

Next, get them to tell you which cards their number appears on.

Add together the numbers on the top left hand corner of those cards.

The total will be your friend's number.

1	3	5	7	9	11	13	15
17	19	21	23	25	27	29	31
33	35	37	39	41	43	45	47
49	51	53	55	57	59	61	63

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(A)

8	9	10	11	12	13	14	15
24	25	26	27	28	29	30	31
40	41	42	43	44	45	46	47
56	57	58	59	60	61	62	63

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(D)

2	3	6	7	10	11	14	15
18	19	22	23	26	27	30	31
34	35	38	39	42	43	46	47
50	51	54	55	58	59	62	63

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(B)

16	17	18	19	20	21	22	23
24	25	26	27	28	29	30	31
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

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(E)

4	5	6	7	12	13	14	15
20	21	22	23	28	29	30	31
36	37	38	39	44	45	46	47
52	53	54	55	60	61	62	63

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(C)

32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

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(F)